



ROYAL AUSTRALASIAN COLLEGE OF SURGEONS

Fellowship Examination 2015

Neurosurgery

Written Paper One

Wednesday 19 August 2015

Reading Time: (10 minutes)

Writing Time: (2 hours)

QUESTION AND ANSWER BOOK

<i>Section</i>	<i>Number of Questions to be Answered</i>
Essay Questions	3

Candidates are permitted to bring into the examination room:

- Pens
- Pencils
- Erasers

Candidates are not permitted to bring into the examination room:

- Blank sheets of paper
- White-out liquid/tape

Materials supplied:

- Question and Answer Book of 51 pages

Instructions to candidates:

- All answers must be written in English.
- Write only on the lined pages.

At the end of the examination, candidates are to leave the Question and Answer Book on their desk. Candidates are not permitted to remove the Question Book from the examination room.

Candidates are NOT permitted to bring mobile phones and/or any other unauthorised electronic devices into the examination room.

Essay Questions

Candidates are to write answers in the space provided. Answers outside this area will not be seen in the Examiners' copies of the answers and will therefore not be assessed.

ALL questions must be answered. Each question is of equal value.

Clearly number the question you are answering.

Question 1

- 1) List the factors that influence the outcome of patients with severe traumatic brain injury.
- 2) What are the methods of monitoring patients with severe traumatic brain injury and how is this information used to influence management?
- 3) What are the considerations for patients on anticoagulation and/or antithrombotic therapy prior to sustaining a head injury?

Question 2

A 30 year-old man fell six metres from a tree, catching a branch with his left hand as he fell. This resulted in weakness of his left hand and pain in the shoulder. His left hand weakness persisted.

- 1) Draw and label the left brachial plexus.
- 2) What are the most likely neurological structures within the brachial plexus that have been injured?
- 3) What are the most likely findings on clinical examination and relate these findings to the anatomy?
- 4) What are the most appropriate diagnostic investigations and what are the likely relevant findings that localise the injury and assist with prediction of prognosis?

Question 3

- a) In Von Hippel-Lindau syndrome:
 - i. What is the genetic abnormality?
 - ii. What are the central nervous system abnormalities of this disease?
 - iii. What are the associated abnormalities?
- b) In neurofibromatosis II:
 - i. What is the genetic abnormality?
 - ii. What are the central nervous system abnormalities of this disease?
 - iii. What are the associated abnormalities?



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QUESTION AND ANSWER BOOK

<i>Section</i>	<i>Number of Questions to be Answered</i>
One - Essay Questions	3

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Essay Questions

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Clearly number the question you are answering.

Question 1

This 52 year-old man with polycystic kidney disease and borderline renal function, whose mother died at the age of 54 from a ruptured cerebral aneurysm, was found on MRA screening to have a 3mm right middle cerebral artery bifurcation aneurysm. The renal physician referred the patient for an opinion regarding management when a subsequent MRA showed the aneurysm to be 4.5 mm. The MRA is shown.



- 1) Describe the pathogenesis of cerebral aneurysms?
- 2) What are the risk factors for cerebral aneurysm rupture?
- 3) Write a letter to the referring doctor outlining your suggested management of this patient. Include in your letter reference to relevant data in the literature supporting your recommendations.

Question 2

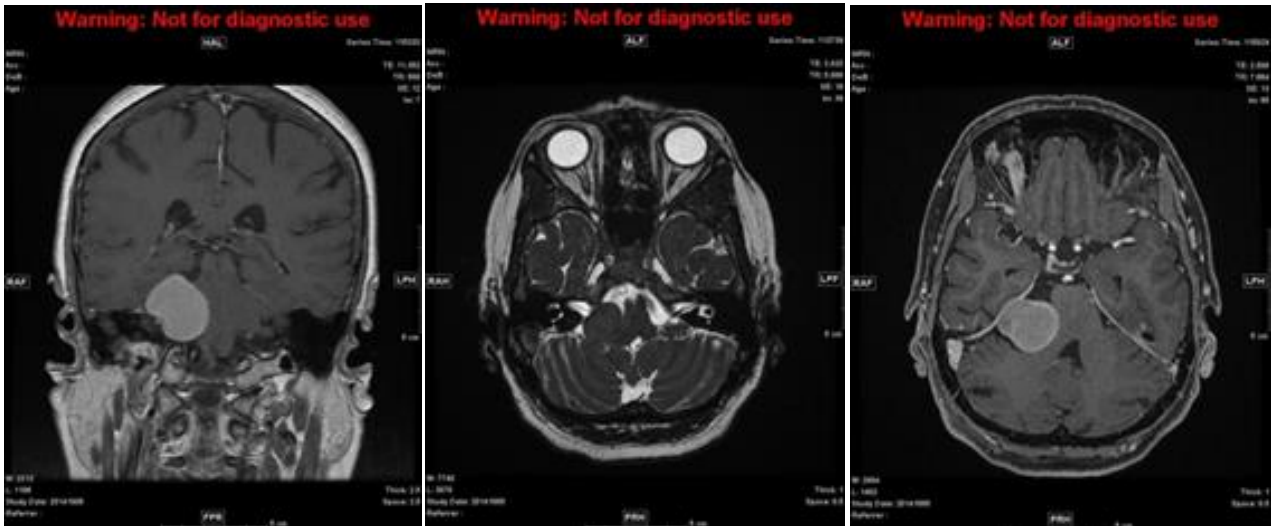
A 57 year-old man presents with neck pain, progressive difficulties walking, loss of balance and a sensory disturbance in his hands that developed over the last 4 months. Examination finds a slow spastic gait, increased tone and exaggerated reflexes in all limbs. The MRI is shown.



- 1) Describe the abnormal findings of the MRI and explain how they relate to the presenting symptoms.
- 2) What further investigations would you consider and how could they assist with the management of this patient?
- 3) What surgical options could be offered to this patient?
- 4) Describe the operative procedure you would recommend. Include reasons, details of operation, risks and likely outcome. What are the particular operative considerations related to this site?

Question 3

A 70 year old woman with progressive gait ataxia, and several falls, is referred by a neurologist. On examination she has impaired tandem gait but no other neurological abnormalities or symptoms. MRI of the brain is shown.



- 1) State the differential and likely diagnosis with your reasoning.
- 2) State the management options, their advantages and disadvantages, identify your preferred option (and why) and include short term and long term management.
- 3) Explain how the most common cranial nerve complications occur from your preferred surgical approach. Describe these complications and their consequences.
- 4) How are two of these above complications managed?